GEORGE H. HORN, WILLIAM G. WRIGHT, AND THE PECULIAR PROBLEMS CREATED BY THE DISCOVERY OF THE WORLD'S LARGEST BOSTRICHID BEETLE, *DINAPATE WRIGHTII* (COLEOPTERA: BOSTRICHIDAE)

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ABSTRACT: When William Greenwood Wright sent George H. Horn fragmentary remains of the world's largest bostrichid beetle in 1885, he unwittingly brought about that great coleopterist's most unusual blunder - the production of a chimaera, with attendant problems for Horn. Turn about, Horn's knowing misrepresentation of certain facts before him unintentionally caused Wright's name to be linked with deceit and cupidity. Horn's error in originally stating *Dinapate wrightii* to be "the largest blind beetle known" is reviewed, variations in his subsequent accounts are discussed, and an explanation is presented. The factual background for these events is pieced together leading to the conclusion that Wright is innocent of unsupported charges against him and a victim of Horn's errors and subsequent accusations by others.

"... the last error shall be worse than the first."
Matthew XXVII, 64.

If George H. Horn, President of the American Entomological Society for sixteen years (1867-68 and 1884-97), member of the Advisory Committee for the first eight volumes (1890-1897) of *Entomological News*, and premier American coleopterist of his time, were alive today to tell us of any notable misadventure associated with any one beetle among the nearly 1600 he had described as new, I believe unhesitatingly he would devote his remarks to *Dinapate wrightii* Horn. That beetle is the only recorded borer in our native fan palm and is by far the largest bostrichid known. To those distinctions must be added that it is one of the few living beetles described from fragments only, as though from fossilized remnants. Horn's distress over his tribulations with that beetle would surely heighten were he now to learn that his deviation from the facts before him had resulted in the defamation of the accomplished naturalist William Greenwood Wright of San Bernardino, California, discover of *Dinapate*, with whom for years thereafter Horn had maintained a cordial relationship.

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Horn's first error: the four accounts of *Dinapate* and how they changed.

Horn (1886) laconically tells of his troubles with *Dinapate* as follows: "The first fragments of this genus received by me consisted of a hind body and a head without mouth parts, excepting the mandibles. Supposing the head (which I now know to be larval) to belong to the fragments of body, the genus has been characterized in verbal remarks before the Academy of Natural Sciences as eyeless, and therefore the largest blind Coleopter known. The discovery of additional material enables me now to correct an error which has unfortunately appeared in print." Horn does not say where the error appeared in print, and a search has turned up no publication of a suitable date that cites Horn's remarks.

Actually Horn had portrayed the giant bostrichid as blind before both the Academy of Natural Sciences of Philadelphia (hereafter the "Academy") on 24 November 1885, and the Entomological Section of the Academy (officially the American Entomological Society since 1867) on 14 December 1885 — an important date. Official handscript minutes of both meetings, entered in separate ledgers, are in the Academy's Archives. The relevant remarks made by Horn at the Academy are: The beetle "... is a voracious wood borer. It is two inches long in the female, and over two inches in the male, or three times the size of the largest allied species. It is totally blind and is the largest blind beetle yet known." By the time of Horn's talk on 14 December, the beetle had been baptized. The secretary's minutes state that "Dr. Horn exhibited some drawings of *Dinapate Wrightii*. From these the plates will be made that will accompany the paper upon this insect, which, Dr. Horn states, to be the largest blind insect known."

Neither Horn's remarks, nor mention of his talk, appear in the published Proceedings of the Academy. Those made in mid-December before its Entomological Section were altered before publication (see: Trans. Amer. Ent. Soc. 12, Proc. xxiv). They state: "Dr. Horn exhibited fragments of several specimens of *Dinapate Wrightii*, and drawings which he had made for the lithographic artist in preparing a plate." They omit mention of Horn's mistake and imply that the plate exhibited by Horn at the meeting is the one prepared for the wholly new manuscript accepted for publication on 28 January 1886 (see: Trans. Amer. Ent. Soc. 13, Proc. ii; signature dated June, 1886).

There is a mysterious third reference: "Note on *Dinapate Wrightii* n.g. et n.sp." listed in Henshaw (1886: see pp. 68 *and* 95) as by Horn and published in "*Science* 1885, v. 5, No. 148, p. 2 Proc." That reference would seem to suggest that here was the item which Horn stated to have "... unfortunately appeared in print." However, that proves not to be the

case. The cited note, as well as two other items attributed to Horn by Henshaw, were never published in *Science* or elsewhere. Why Henshaw did not withdraw those titles from his list of literature, the two parts of which were published in July and August of 1886, is a puzzle. First, he had every opportunity to check whether the titles had been published in *Science* in 1885[1]*; second, as documented later (see annotation 6), Henshaw had received and commented on Horn's (1886) published description of *Dinapate* some two to possibly four months before the signatures containing his own article had been set in type[2]; finally, Horn's published description of *Dinapate* had been reviewed in the issue and on the page immediately preceeding that of the first part of Henshaw's article (see: Ent. Amer. 2(3): 64 and 2(4): 65 respectively). All that can be concluded is that Henshaw's reference to the "Note on *Dinapate* . . .", though factually wrong, could not have been just a figment of his imagination. Such a note surely had been written, had been submitted for publication in *Science* sometime toward the close of 1885, but for one reason or another had not been published.

I have been unable to find any other reference to an account recording Horn's error that appears relevant, considering the time of publication of Horn (1886). Where then had Horn's premature remark ". . . appeared in print"? Note that Horn's phrase does *not* say that his remarks had been *published.*

It seems likely that Horn's remarks of 24 November 1885 had indeed "... appeared in print" in signature 26 of the Proceedings of the Academy for 1885. Signatures 26 and 27 (pp. 385-416) had been printed and were distributed to the members of the Academy at the regular meeting of 19 January 1886. They contained a number of research articles, the minutes of the Academy for the nine weekly meetings held in the period 3 November through 29 December 1885, as well as various reports, including that of the Corresponding Secretary of the Academy (namely Horn). Presumably the text was distributed to the membership for approval and at that point was still subject to revisiion and elision. Horn was not present at that meeting (as the Recording Secretary's handscript record shows) but as Corresponding Secretary he assuredly received a copy. If the embarrassing remarks were present in the *printed* minutes, Horn alone had cause to seek their removal, as painful for him as that may have proved.

The conclusion offered is a plausible conjecture, and at this time is not subject to direct test for no known copies of that "pamphlet" of 19 January 1886 is in the Academy's Archives. Apparently Horn did not disapprove of those minutes when they were read for approval at a meeting early in December, for on 14 December, before the Entomological See-

*The numerical superscripts refer to annotations to the text at the end of this paper.

tion of the Academy, he had declared *Dinapate* "... to be the largest blind insect known." The Recording Secretary of the Academy certified the date of distribution of the signatures to members of the Academy to be 19 January 1886 in a letter dated 4 February 1886 and printed on the reverse of the title page for the Proceedings of 1885. Accordingly there was adequate time remaining for revision. The final issue (Part 3) of the Proceedings for 1885 could not have been distributed to members and subscribers or sent out in exchange before early February, 1886. The American Entomological Society acknowledged receipt of a copy of Part 3 at its only February meeting, on the 25th, 1886 (Trans. Amer. Ent. Soc. 13, Proc. ii, 1886).

At that time Horn enjoyed world-wide renown. He was a member of four distinguished foreign entomological societies among others (see list in Calvert 1898, p. xxii). In addition he had recently been elected an honorary member of the Entomologisches Verein zu Stettin (1884) and an honorary member of the Société entomologique de France, Paris (1885), both prestigious honors. The international esteem in which he was held owed to his extraordinarily wide knowledge of beetles, his exceptional eye for valuable diagnostic attributes, for his clear, succinct and reliable descriptions of species and genera, for his excellent monographs, and for his attention to the works of foreign coleopterists bearing on the North American fauna. Publication of his manuscript and plate of an eyeless adult *Dinapate*, with its larval head, would have proven a monumental embarrassment to Horn once an articulated specimen or adult head of *Dinapate* had been found.

Providentially, Horn was saved from continuing his blunder sometime between 14 December 1885 and 19 January 1886, or shortly thereafter, as the foregoing dates imply. In that period he received from Wright two large larvae and a head (lacking ligula and labial palps) and at least one antenna of an adult *Dinapate*. Now aware of his mistake, happily for Horn the new specimens had come at a time when he was still able to withdraw or alter the unpublished accounts of his remarks, as he evidently did.[3] However, at least thirty individuals had heard his comments about "the largest blind beetle (or insect) known." That error certainly had its ludicrous aspects (but not for Horn) and there remained a strong likelihood that remarks or correspondence of one or more members of his audiences would carry far afield, an unpleasant possibility. Horn (1886) lessened the prospect of damage to his reputation, should revelation of his remarks occur,[4] by frankly stating his error and his view of its "cause" in the paper he finally published, as quoted in the initial paragraph of this section (q.v.). A similar but much briefer remark was recorded in the unpublished minutes for the 25 May 1886 meeting of the Academy.

Although the signature of Horn's publication on *Dinapate* is dated January, 1886 and the article occupies only the first four pages of the first number of *Transactions* 13 for 1886, the preprints ("extras" as they were then called) and the first number of volume 13 (consisting of eight signatures) were first available for distribution much later.[5] Horn mailed preprints toward the end of March[6] and the first number of the *Transactions* was mailed about a month later.[7]

Was Horn's synthetic *Dinapate* a transparent error?

Few coleopterists who have never seen adult or larval *Dinapate* would fail to be astonished, as I was, on reading Horn's bland statement of his error in conjoining the eyeless head of a larva with the hinder body of an adult. How could Horn with a quarter of a century's experience, and already distinguished author of 179 notes and papers on beetles, deceive himself thus and seemingly so egregiously? Unwarranted haste would be my answer,[8] and not the monster he had unwittingly contrived.

It may be recalled that Horn exhibited his fragments and drawing of the "blind" *Dinapate* at the 14 December 1885 meeting of the Entomological Section of the Academy. The handscript minutes of that meeting make no mention of skepticism or criticism voiced by any of the ten other entomologists present. To them it must have seemed a proper beetle, albeit blind. How would such a chimaera fare today?

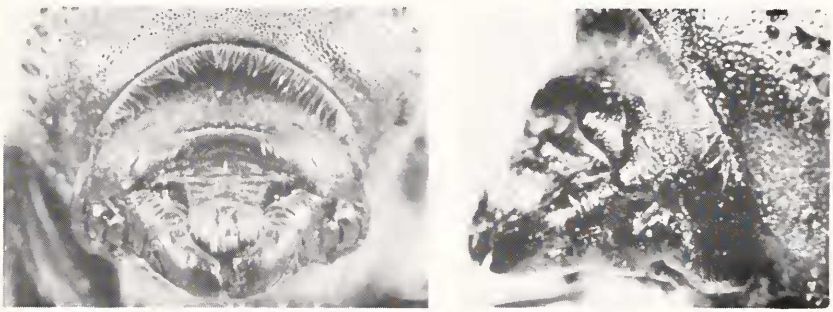

Figure 1: How the chimaera of *Dinapate wrightii* looked to Horn. The head of an adult has been replaced with that of a nearly mature larva. The result is a plausible adult beetle. Left: face view; right: oblique lateral view. Reproduced at 4.5x.

Figure 1 shows aspects of an adult *Dinapate* provided with a larval head. It differs from Horn's chimaera (which was assembled as a drawing) by retaining the larval mouthparts in addition to the mandibles and antennae. It is indeed a convincing looking adult beetle that had lost its antennae, for the general appearance of the larval and adult head is

strikingly similiar in size, shape, heavy tough integument, setation and coloration. Most to whom I showed the chimaera, after closely examining it, commented only that its antennae are missing, showing that they, like Horn and his colleagues, readily accepted the larval head as that of an adult beetle. Horn's error was not a foolish one but his haste in this case was.

What *is* the type locality of *Dinapate*?

Horn (1886) states the type locality to be the "Mojave Desert, California." However, no known record establishes when, or exactly where, Wright first found fragments of *Dinapate* or whether all of the fragments came from the same locality. Clearly they did not come from one individual and that is definitely so for the "specimens" finally described by Horn.

In the unpublished minutes of the Academy's meeting on 25 May 1886, Horn is recorded as having remarked that "The imago is as large as a man's thumb . . . yet it has not been known until within recent years."[9] At a minimum that suggests the discovery to have been made not later than sometime in 1884. Though both Horn (Trans. Amer. Ent. Soc. 13, Proc. xix, 1886) and Wright[10] had obtained intact adult specimens by rearing before the close of 1886, it was nearly eleven years later that the first find of specimens of *Dinapate* by anyone other than Wright appears to have been made. Again, no living adult beetle had been found. It is the only record before 1900 for which there is a *bona fide*, published account. However, it was not a chance discovery, and it was not made on the Mojave Desert.

On 8 February 1897 Henry G. Hubbard, an exceptional collector, wrote to his friend E. A. Schwarz, a coleopterist at the U.S. National Museum, that he had just returned from Palm Canyon, at that time about seven to eight miles south of the small village of Palm Springs. There he had found the workings of *Dinapate* in logs of the fan palm, *Washingtonia filifera*, as well as a disarticulated specimen of the beetle. He mentioned that the proprietor ("Dr." Welwood Murray) of the Palm Springs Hotel,[11] where he stayed, had told him that "Mr. Wright comes almost every year in September to this place and always goes without a word up the cañon, so that no one here has ever heard of *Dinapate*." Hubbard wrote that he ". . . could easily trace the operations of Mr. Wright . . ." and that "Several logs which Mr. Wright has laid open to the heart gave me an excellent chance of examining the old borings of the beetle . . .". In them Hubbard had found dead larvae of *Dinapate* and their remains. That letter and two others (of 27 February and 13 March 1897) of a total of six bearing on *Dinapate* were published posthumously.[12] Their very enjoyable texts (Hubbard 1899) give the first account of the biology of *Dinapate* and few of the many later publications add importantly to what Hubbard had

observed and thought. From the sections of palm trunk that Hubbard sent to Schwarz six adult *D. wrightii* were obtained. Emergence of adults occurred in Washington, D.C., in the period 29 July to 30 August 1897 (records on file at the U.S. National Museum).

A footnote by Schwarz at the close of Hubbard (1899; *v.* p. 89) holds that "While at San Diego, Cala., Mr. Hubbard ascertained that the type locality of *Dinapate wrightii* is Palm Springs, Cala. and not the Mojave desert as stated by Horn." Regrettably Hubbard's notebook in the Smithsonian Archives has no mention of this and the only record available is Hubbard's letter of 1 February 1897 (unpublished). In that letter to Schwarz, Hubbard says "I found out today where Mr. Wright got his specimens of *Dinapate*. It was at Palm Springs Cal." ... "I met today with Mr. [G. W.] Dunn, a sort of entomologist ... He knew all about *Dinapate* & where it was found. Says it occurs in Sept. & has seen the holes himself but has never taken the insect. He says Mr. Wright gave away to a dealer the only good specimen he had as he expected to get more and the dealer asks $1300 for the specimen,"[13] In the very first line of the same letter Hubbard mentions "On my arrival here at noon on Saturday I found your letters of Jan. 20th, 21st, & 22nd ... ". Ironically Schwarz' letter of 21 January 1897 (see Schwarz 1929, pp. 234 - 235) advises Hubbard that "Coquillett [a government entomologist with much experience in California][14] says you would enjoy greatly a short stay at Palm Spring[s] in the Desert where there is a good hotel and where you would have an opportunity of seeing the native palm trees of California, *Washingtonia filifera*. In the dead trunk of one of these trees the giant Bostryc[h]id, *Dinapate wrightii*, has been discovered." The Coquillett Notebooks in the National Archives make no mention of *Dinapate*. Nor does Schwarz say Coquillett had told him of the occurrence of *Dinapate* at Palm Springs. But most assuredly Schwarz had heard that *Dinapate* occurs there and in the fan palm before Hubbard had spoken with Dunn. If not from Coquillett, from whom or how could Schwarz have obtained his knowledge? And if from Coquillett, from whom did Coquillett learn that fact? It seems unlikely that either learned this from Horn.

In any case, because of the foregoing, Palm Springs is now regarded to be the type locality of *Dinapate wrightii* (Lesne 1909, Fisher 1950). It must nevertheless be recognized that hotel proprietor Murray's remarks to Hubbard about Wright's activities of each September in Palm Canyon have little bearing on whether or not Palm Springs is the type locality. Murray is said to have moved to Palm Springs (then "Palm Valley") in 1886 (Gunther 1984) and his hotel did not open to receive guests until late in 1886 (Bourne 1953, Harrington 1962, Ainsworth 1973). Horn, it will be remembered, had received fragments of *Dinapate* by November 1885

and perhaps earlier.

The formally designated lectotype is a male mock-up of fragments of adult *Dinapate* (#3560) in the Horn collection at the Museum of Comparative Zoology, Harvard University (Cooper 1986). The fragments composing it came from a region or regions of the Colorado Desert. Davis' (1940) comment that "The type material probably came from Palm Canyon . . ." is the most that can be said. Palm Springs is accordingly an appropriately designated type locality.

The false type locality and the defamation of W. G. Wright

Once it became widely known that the Mojave Desert is not the type locality of *Dinapate*, it was inevitably accepted (as their relative statures assured) that Wright must have deliberately duped Horn about the source of his specimens. That was first implied by James (1906), resident at the Murray hotel during Hubbard's stay and in a muddled way familiar with Hubbard's activities. Others reached the conclusion that Wright had lied to Horn in order to conceal the source of his specimens or simply echoed that view (Martin 1917, Comstock 1922, Michelbacher and Ross 1938, Stickney *et al.* 1950, Baker 1965). It is now the firm belief of coleopterists interested in *Dinapate* or its allies. But why would Wright choose to have his wonderful new beetle described and associated with a false type locality, for sooner or later that would surely bring his name into disrepute?

Jaeger (1956) alone has given an explicit, detailed answer to that question. To summarize: customarily Wright was secretive about his collecting. If asked where he had been, his answer generally was "Oh, out on the Mojave." "It was after one of his long drawn-out 'Mojave journeys' that he returned with some very valuable beetles, so unbelievably rare and unusual in appearance that he offered them for sale and, it is said, got nearly a thousand dollars a pair for them. At least three such sales were made before the price came down: to the British Museum, to the Russian Museum at St. Petersburg, and, I believe, to a museum in Paris." Under the circumstances, as Jaeger says, *Dinapate* ". . . was worth as much as a vein of gold to Wright." During the golden period of commercialism, Jaeger says that Wright would first move out onto the Mojave, then camp until his pursuers ("Many of his friends, either anxious to collect the beetle for their own collections or for possible sale") had tired of waiting and departed. Wright would then circle to the east of the San Bernardino mountains and enter the Colorado Desert and Palm Canyon, via the Morongo Pass, from the north. Such a route would be an arduous one-way trip of 100 miles or so by horse-drawn wagon, compared with the more direct eastward route (about 55 miles or slightly more) via the San

Gorgonio Pass. Furthermore, "Wright seldom paused in the village of Palm Springs but went directly to the canyon without a word to anyone."

Wright's time-consuming and necessarily secret tactic for eluding those who would follow him is said by Jaeger to have succeeded through the years 1886 to 1897. How could Jaeger know at first hand what he describes so factually? Born in 1887, he ranged from minus one to nine years of age in that period. The only information verifiable today provided by Jaeger's account is that of Wright's sales to the three museums. Inquiries were made of entomologists at those institutions concerning purchases of *Dinapate* from Wright.

Dr. John La Salle, during his research at the Zoological Institute of the Academy of Sciences of the USSR, Leningrad (the old St. Petersburg Museum) found no specimens of *Dinapate* there or any record in its register that there ever had been specimens in the collection.

Dr. J.J. Menier, of the Muséum National d'Histoire Naturelle, Paris, very kindly sent me a photocopy of the relevant page of the Catalogue des Animaux Articulés, Série 1888. The 44th entry for that year records their sole specimen as new to the collection: "*Dinapate Wrightii*, Horn. Californie, . . . Insecte Coléoptère donné au Museum par . . . Horn."

Miss C. M. von Hayek, of the British Museum of Natural History, wrote that a male and female of *Dinapate wrightii* (with the locality labels "California," but not in Wright's hand to judge from the photocopies so thoughtfully sent me) as well as two larvae, are in fact in the collection. The Accessions Catalogue lists all four as "*Presented* by Dr. W. G. Wright, San Bernardino, California" (italics mine). They were received in 1886 and "presumably early on as the serial number [14] is low." Dr. John La Salle, now of the C.A.B. Institute of Entomology, London, has provided additional information from the accession records, as well as copies of a few letters interchanged between Wright and A. G. Butler, Assistant Keeper of the Zoological Department.[15]

So much for Jaeger's account. His primary sources seem to have included Hubbard (1899), James (1906), Martin (1917), and Schwarz (1929) but his account perhaps draws upon gossip and tales that had grown over the years among his naturalist acquaintances plus a personal excess of imagination. Few readers of Jaeger's articles would fail to be astonished on learning that he was a highly regarded naturalist and very successful author of non-fictional books of solid worth about Southern California and its plants and animals.

Who misstated the type locality, and why?

Correspondence between Wright and Horn concerning *Dinapate*, which in principle could resolve many problems of interpretation, does not appear among preserved papers of either man. Horn had died after a lengthy illness at the end of November 1897. It is not known whether news of Hubbard's recent success in finding *Dinapate* on the Colorado Desert, at what is presumed to be the type locality, had reached him, although it had been mentioned in Philadelphia as early as 9 March 1897 (Smith 1897). A statement by Horn could possibly have resolved the dilemma. Wright never answered what James (1906) had implied and Wright died (in December 1912) long before Martin's (1917) conclusions had been published. Of course Wright may not have seen James' book or had it called to his attention. Even so, no reply to such a charge would be required other than by a nagging conscience. Fortunately there is one record, reinforced by publication, that answers the question of who bears the responsibility for citing the Mojave Desert as the type locality but not the question why. It absolves Wright, who seems guileless; it is Horn who bears the responsibility.

The *unpublished* minutes of Horn's remarks at the Academy on 24 November 1885 commence: "Dr. Horn called attention to a specimen of coleoptera collected in the Colorado Desert by Mr. Wright[16] . . . it is the largest blind beetle yet known." That observation is reported in a note on that meeting published in the *American Naturalist* 20:754 for August 1886: "Dr. Horn described a large, blind, wood-boring beetle from the Colorado Desert." So it was not the Mojave Desert but the Colorado Desert (an arm of the Sonoran Desert) that Wright gave Horn as the source of the fragments which Horn assembled and described as *Dinapate Wrightii*. Had Wright, at that time, specifically designated the area in that desert which became known as Palm Springs in late 1887 (Gunther 1984), depending on the year(s) of collection, he might have stated Agua Caliente, the most widely used name in the period 1875 - 1886 or less likely, Palm City (1884 - 1885) or even Palm Valley as the home of *Dinapate*.[17] Whether he had designated a specific site is not mentioned by Horn. Oddly, Horn had not stated the Colorado Desert to be *Dinapate's* home at any meeting of the Entomological Section of the Academy.

Consider now Horn's public remarks concerning the host plant in which the larvae of *Dinapate* live. The unpublished minutes of the Academy for its meeting of 25 May 1886 record Horn as remarking that "The trunks of a species of palm, *Washingtonia filifera* are so tunnelled by the larvae of this beetle, *Dinapate Wrightii*, as to threaten destruction of the plant." Again, at the meeting of the Academy on 3 August 1886 the unpublished minutes state that "Dr. Horn exhibited a fragment of the

trunk of *Washingtonia filifera* containing a larva of *Dinapate* and showing ravages inflicted by the insect on the tree." In the *American Naturalist* 20:1000, issued 23 November 1886, it is commented that at that August meeting of the Academy "Dr. Horn showed a fragment of the palm *Washingtonia filifera* containing a larva of a beetle (*Dinapate*) recently described by him."

The above are in striking contrast to Horn's remarks before the Entomological Section of the Academy. Though the topics were much the same, the minutes *never* mentioned that the host is a palm, no less the specific palm *Washingtonia filifera*. The host is simply "a tree" and the portions of the "tree" displayed are described as a "fragment of tree trunk" or a "section of a tree" (see respectively: Trans. Amer. Ent. Soc. 13, Proc. xvii and xix; *ibid*., 14, Proc. vii, 1887).

It is now strikingly clear that Horn's remarks before the Academy were not intended for either the entomologists' ears (in Philadelphia) or eyes (anywhere). It is easily seen why.

Dinapate is a very large beetle and obviously must require a very large plant host peculiar to the appropriate desert. Potential hosts would differ if the beetle is an inhabitant of the Mojave Desert (high desert) or the Colorado Desert (low desert) of which *Washingtonia filifera* is an endemic. Sharp (1899) provides an excellent example of such direct reasoning. Because Horn (1886) had given the type locality as the Mojave Desert, Sharp quite rationally but unwisely stated in the renowned Cambridge Natural History that the larva of *Dinapate* is " . . . found in the stems of species of yucca."[18]

By similar reasoning, a determined entomologist knowing either the true type locality of *Dinapate* or its plant host but not both, without great difficulty would soon be able to narrow down the missing element. Given both the Colorado Desert as habitat and *Washingtonia filifera* as host (or just "native fan palm of California"), even without a definite desert locality such as Agua Caliente, success in finding *Dinapate*[19] (but not necessarily in obtaining an adult specimen) would virtually be assured. Horn, however, provided neither clue to the haunts of *Dinapate* in his published article; quite the reverse, he misrepresented where it occurs. Why?

The answer seems to lie in Horn's (1886) remarks immediately following his listing of the Mojave Desert as the type locality. He says:

"As the habits of this insect and its larva are now being investigated by Mr. Wright, I refrain from mentioning any matters of this character as comparatively little is known except its food plant. It is to be expected

that in the near future we will have full details from him." Horn also comments on Wright as ". . . a zealous Botanist, for whom neither the privations incident to an exploration of the Mojave Desert [Wright 1883] nor the jealous watchfulness of the Indians [Wright 1884[20]] seemed to have had any terrors."

In justice to Horn, it is likely that Wright had asked him not to reveal the locality or host from which the specimens were taken for the reasons Horn gives in his 1886 description.[21] However, naming the Mojave Desert appears to have been a deliberate deception for at that time the Mojave and Colorado Deserts were sharply distinguished by all but laymen.[22]

Though Horn's decision to cite the Mojave Desert as the type locality may be regarded by some as defensible (as Horn no doubt would contend), it was, in fact, Horn's worst and last mistake in his extraordinary affair with *Dinapate*. Not only did it cause Wright's character to be defamed, as it has remained to this day, but the gambit was foolhardy. It would inevitably be found out that the cited type locality was a deception, to Horn's discredit. It is not the only erroneous type locality on record associated with an eminent coleopterist (see Leech 1958), but it is perhaps unique in being an apparently deliberate misrepresentation by a most eminent and highly regarded entomologist. All that could have been avoided had Horn simply given California as the type locality; assuredly imprecise, as was common in those days, but not untrue.

Etymology of *Dinapate*

Horn (1886) did not discuss the meaning he attributed to the name *Dinapate*. Jaeger (1956) however does, and would have it believed that "... *Dinapate* was coined from two Greek words meaning 'clever deception,' probably in reference to Wright's wiley tactics."

However, *Apate* was already employed as the name of a genus of bostrichids of generally large size, to both larva and adult of which *Dinapate* bears resemblance.[23] The Greek *deinos* denotes terrible, fearful, etc. In the same vein that prompted *Dinichthys*, *Dinosaurus*, *Dinornis* and *Dinotherium* for fish, reptile, bird, and mammal of earlier times that were "terrible," impressive monsters of their kind, Horn very likely, in analogy, coined "*Dinapate*." By rare coincidence the Greek *apate* denotes fraud, deceit, etc. Recalling Horn's initial blind chimaera with a larval head and an adult body, or the misrepresentations of the type locality, or both, "*Dinapate*" becomes what probably was an unintended but very apt pedantic pun: Terrible fraud!

CONCLUSIONS

1) Horn's remarks on *Dinapate* and exhibition of a drawing of it as "... the largest blind coleopter known" were recorded in the handscript minutes of the meetings at which he spoke. Following his discovery that he had created a chimaera having a larval head and adult afterbody, neither those minutes nor a very likely submission on *Dinapate* to *Science* (not necessarily by Horn) were ever published.

2) The mistaken placing of a larval head on the body of an adult of *Dinapate*, as Horn had done using the first fragments of the beetle sent him by Wright, is not as incredible an error as it would seem. Such a newly reconsituted chimaera, though eyeless and a giant among bostrichids, appears otherwise unremarkable as an adult beetle that had lost its antennae.

3) Though no correspondence between Wright and Horn is known to have been preserved, it is shown that Horn *was* informed by Wright that *Dinapate's* habitat is the Colorado Desert and its host the California fan palm, *Washingtonia filifera*.

4) Neither host nor habitat were revealed by Horn (1886) in his paper on *Dinapate*, nor in published minutes though he spoke openly of both to non-entomological audiences, and was so recorded in the handscript minutes of the meetings. They were not stated in print, perhaps at Wright's request, so that Wright might continue his study of the biology of *Dinapate* at his leisure, which he did.

5) When concealing the type locality in his publication, Horn misrepresented it — his last error. He gave the Mojave Desert, which is false.

6) After publication of Hubbard's (1899) investigations which confirmed Schwarz' and Dunn's prior knowledge that *Dinapate* occurs at Palm Springs, that last error by Horn led to widespread belief that Wright had deliberately deceived Horn regarding the type locality, which he had not.

7) A brief history of the defamation of Wright is given and probed. The claim that Wright sold specimens of *Dinapate* to three Old World museums for huge sums is shown to be false.

Annotations to the Text

1. Number 148 of *Science*, a weekly periodical, is part of volume 6, not 5 as cited by Henshaw. None of the *Science* numbers contain any of the three references cited by Henshaw, nor does Henshaw's (1898) compilation of Horn's entomological publications.
2. Did Henshaw fail to check No. 148 of *Science* because he thought Horn's reference to the printing of his remark before the Academy was actually a reference to the title for which Henshaw had some reason to believe would appear as he had cited?
3. As will become clear, Horn had still another reason, very important to him, for with-

drawing his remarks made at the Academy on 24 November 1885.

4. Which in fact did happen long after Horn's article on *Dinapate* had appeared, as will be reported further on.
5. On 25 March 1886, the Publication Committee of the Entomological Section of the Academy ". . . reported that 96 pages (12 signatures) with seven plates of vol. xiii had been completed" (Trans. Amer. Ent. Soc. 13, Proc. iii, 1886).
6. Horn's preprints were probably mailed close to 29 March. In a letter to Henshaw dated 9 April 1886 (now in the Archives of the Museum of Comparative Zoology, Harvard University), Horn expressed gratification that Henshaw had been pleased by the *Dinapate* paper. Coincidentally, a presentation copy of the preprint from W. G. Wright (signed in his hand), of San Bernardino, California, to an unidentified recipient (and now in the possession of the California Academy of Sciences) is also dated 9 April 1886.
7. The first number of *Transactions* 13 (pages 1 - 64, 8 signatures) was received at Harvard on 30 April 1886 and at the British Museum of Natural History on 8 May 1886. According to R. L. Moroney, Historian in the office of the Postmaster General, the latter date is compatible with a mailing at Philadelphia ". . . in late April 1886."
8. Horn surely must have realized that complete specimens would turn up through the activities of the energetic Wright, as indeed they did in the first quarter of 1886.[15] As Quine (1987) remarks "... the more surprising a thing would be if true, the less likely it is. . ." Horn's failure to wait for an intact example is testimony to the certainty he felt, as unique as that would be, that *Dinapate* is eyeless, even though that placed it sharply apart from all above average-sized insects known.
9. It seemed odd to Horn and ohers that such a large beetle should escape notice and collection. Though often fairly common in many groves of fan palms in southern California, it emerges nocturnally and then takes to flight (Martin 1917). Thereafter it is to be found burrowed into the growing tips of palms (Wymore 1928). As to be expected from such behavior, very few adults have been hand-collected; most have been obtained by rearing or cutting them from infested logs in spring (*e.g.* Garnett 1918).
10. Wright's intact specimens will feature importantly in another context; namely did he sell specimens to the British Museum of Natural History? The evidence presented permits estimates of when he had them at hand.
11. For a relevant picture, see p. 83 of Ainsworth (1973). In it are displayed Welwood Murray and the two large, upright logs of *Washingtonia*, pocked with exit holes of *Dinapate*, that served as gateposts to the Palm Springs Hotel in Hubbard's time.
12. E. A. Schwarz saw to their publication. His footnote to p. 83 in Hubbard (1899) states "These letters are now, after the death of the author, published without any alterations." However, when the original copies of the letters (in the Smithsonian Archives) are compared with the published text, Schwarz appears to have been in a spirited editorial mood. He freely made deletions (in addition to omitting those parts of the letters not bearing on *Dinapate*), substitutions, corrections, additions, and changes in punctuation. Happily he altered only what Hubbard wrote, not Hubbard's message.
13. There appears to be no record of that dealer, or of the price of his offering (an apocryphal tale?). But to readers of Schwarz (1929), that sum of $1300 had appeared to involve an unexplained, private joke between Schwarz and Hubbard. It is the basis of an amusing remark that deserves inclusion in any history of the refinding of *Dinapate*. When Hubbard sent Schwarz the disarticulated beetle found on his trip to Palm Canyon, he remarked (13 February 1897, unpublished) "I have put it together with shellac so that it is really not a bad looking specimen. It has been gnawed a little at the hinder end, probably by a mouse, and has lost the ends of the antennae, most of its tarsi, and one or two legs . . .". To which Schwarz replied (19 February) "Of course I duly admired your *Dinapate*. It is not to be [denied] that your specimen is, to put it mildly, somewhat damaged but if a perfect specimen is worth $1300, I place the value of your

specimen at about $688.75." See also Schwarz (1929, pp. 253 - 254) for more in the same vein.

14. Coquillett was an entomological field worker of the U.S.D.A., and active in southern California during the 1880's; leaving there in 1893 for Washington, D.C. He became Custodian of Diptera at the U.S. National Museum and thus a colleague of Schwarz. While in California he is said to have had ". . . a very good knowledge of California Coleoptera" (Banks *et. al.* 1911). Very likely he had heard from Dunn, or some other, of the occurrence of *Dinapate* in the Palms at what is now Palm Springs. It is possible that Wright was the ultimate source, but not to Coquillett.
15. Dates in the Accessions ledger are given for reports on certain lots received, but not for Wright's specimens of *Dinapate* (lot 14). The report date for lot 16 is 19 April 1886. All higher numbered lots have still later report dates. It is likely Wright's *Dinapate* were received on or before 19 April, and that Wright had obtained intact adult specimens a month or more earlier.
16. This portion of Horn's remarks, which is at variance with the type locality he was recording, provided an added reason (to that of "the largest blind beetle known") for withdrawing his remarks of 24 November 1885 from publication.
17. Nevertheless, some of Wright's butterflies collected in 1884 and 1885 are labeled "Palm Springs. Either that name was a familiar one to some at that time, contrary to accounts of place name histories (e.g., Gudde 1969; Gunther 1984), or the specimens were labelled at a later date (perhaps from papered butterflies mounted after "Palm Springs" became the official name of the village).
18. Presumably Sharp had in mind *Yucca brevifolia* Engelm. in Wats., the Joshua Tree, which may reach 12+ m in height. It is distinctive of the Mojave just as *Washingtonia filifera* is of the Colorado Desert (Parish 1930).
19. There are many scattered stands and groves of palms along fault lines and in canyons rimming the Colorado Desert, nearly all with its colony of *Dinapate* (Cornett 1985). In those days only the difficulties of a desert search for palms would prove a formidable obstacle in locating the workings of *Dinapate*.
20. Clearly a trip into the Colorado Desert from San Bernardino. It included a stop in the Palm Canyons south of what is now Palm Springs, and continued south-easterly at least to the Travertine Rock west of the Salton Sink.
21. Parish (1907), a close friend and executor of Wright's estate, mentions Wright's earlier studies of *Dinapate*. He had found where oviposition occurs, larval paths into the trunk of the palm, details of the larval galleries, evidence of the length of larval life, size of populations within a single palm [on the low side], and effect of the larvae on the palm. It is a pity that his studies were not published. Parish also points out, as is clear from *Washingtonia* being the host, and probably corroborated by Wright, that Horn erroneously gave the habitat of *Dinapate* as the Mojave Desert.
22. Parish (1930) notes that the name Mohave [or Mojave] ". . . is sometimes applied to the entire Southern California Desert." But that was not the practice of the period, or later, by geologists, botanists and zoologists. Altitudinally, floristically and faunistically each desert has distinctive attributes, blurred somewhat only at a transition point, as at Twentynine Palms. Anyone innocent of California who consulted a map to find the Mojave Desert would automatically have been misdirected as to the native habitat of *Dinapate*, as Horn assuredly was aware.
23. Horn comments on the resemblances between the larvae only, but he had chosen the name for the beetle before he had received preserved larvae from Wright, namely on or before 14 December 1885 (Trans. Amer. Ent. Soc. 12, Proc. ii). The choice of the name was probably suggested by the enormously larger, but superficially similar, chimaeric adult to that of *Apate* sp. Horn may have had wry feelings about the implications of the name *Dinapate* later on, but not when he compounded it.

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